Le fruit ramassé par un *boy*, "*Il* y porte la dent, fait la grimace. . . . Le moindre ducaton serait bien mieux *son* affaire." Notre *boy* se décide dès lors à porter le fruit au jardinier de "North End Park." Le végétal confié à la terre poussa et donna un arbre, *Barringtonia speciosa*, qui avait atteint 4 pieds de hauteur vers le milieu de l'année 1888.

M. A. W. Buckland émettait l'hypothèse que fruit et pumites, comme aussi quelques poissons et serpents appartenant à des espèces jusque-là inconnues dans le pays, et arrivés en même temps, provenaient des parages de la Sonde, et, à la suite de la grande éruption de Krakatoa en 1883, avaient été portés par les flots jusque sur les rivages de la côte Sud-Africaine.

Il n'y a plus à douter, je crois, de la provenance des pumites. Je n'ai rien à dire au sujet des poissons et serpents. Mais pour ce qui est du fruit de *Barringtonia speciosa*, il me semble qu'on pourrait lui donner une autre origine ou point de départ, et diminuer ainsi de beaucoup la durée de sa traversée sur l'océan.

L'arbre *Barringtonia speciosa* croît, en effet, à Madagascar, où je l'ai vu à Tamatave, sur les bords de la mer. Il ne serait donc point du tout improbable que le fruit porté par les flots à Port-Élisabeth provînt de la grande île Africaine. En même temps que je signalais l'arrivée sur nos plages Malgaches des pumites de Krakatoa, en Septembre 1884 et en Février 1885 (*Cosmos*, nouvelle série, No. 12, p. 320), j'envoyais en Europe divers spécimens de ces pumites ramassés sur la plage de Tamatave. Parmi les spécimens adressés à la Société Nationale d'Acclimatation de France s'en trouvait un dans lequel s'était logé une partie de végétal,—une fleur, si je ne me trompe, d'une espèce de *Terminalia*, qui croît aussi à Tamatave sur les bords de la mer (*Bulletin de la Société Nationale d'Acclimatation de France*, Décembre 1884, p. 983).

Un fruit de *Barringtonia speciosa* arbre qui, comme je l'ai fait remarquer, croît au bord de la mer sur la côte orientale de Madagascar, a très bien pu, de même, prendre "passage" sur une pumite ou un banc de pumites atterrées sur la plage Malgache; puis, à la première haute marée, avoir cinglé sur ce "transport" d'un nouveau genre vers la côte Sud-Africaine, poussé par le Courant Indien, jusqu'à son arrivée à Port-Élisabeth, où il a enrichi le "North End Park" d'un nouvel arbre exotique.

Mais, même dans cette hypothèse, le phénomène observé à Port-Élisabeth n'aurait pas un moindre intérêt. L'île de Madagascar y gagnerait de pouvoir être considérée comme une grande "escale," établie par le Dieu Créateur et Ordonnateur des Mondes, pour le service des "Messageries maritimes" de la Nature entre les Archipels de la Malaisie et la côte Sud-Africaine.

Veuillez agréer, Monsieur le Rédacteur, les respectueuses salutations de votre humble serviteur,

PAUL CAMBOUÉ, S.J.,
Missionnaire apostolique à Tananarive.

Tananarive, Madagascar, 15 Octobre.

A Marine Millipede.

BRITISH naturalists, especially such as work on the south coast, will hear with interest that Mr. J. Sinel has lately found in Jersey the very curious *marine* Millipede, *Geophilus submaritima*, Grube (*Verh. d. schles. Gesellsch.*, 1872). Dr. Latzel, of Vienna, tells me that the specimens differ somewhat from the type, and probably constitute a well-marked variety. Some examples were found close to the low-water mark of very low spring tides, where they could not be exposed more than two days in a fortnight.

The Geophilus occurs associated with two or three beetles, of which at least one appears to be new, and with a remarkable Chelifer which is probably identical with *Obisium littorale*, a new species described by Moniez from Boulogne, in this month's *Revue Biologique*, or with the doubtful species *O. maritimum* of Leach (*Zool. Miscellany*, iii. 1817).

Mr. Sinel's crowbar, a tool the naturalist makes too little use of, is doing wonderful service. D. W. T.

December 2.

A Case of Chemical Equilibrium.

DURING some experiments made in connection with a research recently laid before the Royal Society, we came upon an interesting case of chemical equilibrium.

The object of the research was to determine the rate of evolution of oxidizing material liberated, under varied conditions, in a solution containing dilute hydrogen chloride and potassium chlorate. There was also introduced a little starch solution and a small quantity of potassium iodide to serve as an indicator of the completion of a certain amount of work, which was the conversion of a known small weight of sodium thiosulphate into tetrathionate. The completion of this change was marked by the appearance of a blue colour in the liquid. The operation was then repeated.

In these experiments the amount of substances undergoing change, when compared with the total amount present, was so large that the masses of the substances remained practically constant during each experiment.

In such a mixture the condition of equilibrium may be considered to be represented by the following equation:

$$n\mathrm{HCl} + m\mathrm{KClO_3} = m\mathrm{HClO_3} + m\mathrm{KCl} + (n - m)\mathrm{HCl},$$

where n is greater than m.

We may then regard the oxidizing material as being liberated by the reaction of the $(n - m)$ molecules of hydrogen chloride with the m molecules of hydrogen chlorate so liberated. The presence of the m molecules of potassium chloride will produce its specific effect (in this case acceleration) on the rate of reaction. So that out of the n molecules of hydrogen chloride employed only $n - m$ are actively engaged in liberating oxidizing material, the rest having been employed in saline decomposition. If such be the case, it ought to be possible to obtain a similar rate of oxidation by taking m molecules of hydrogen chlorate instead of potassium chlorate, and then reducing the hydrogen chloride used from n to $(n - m)$ molecules. If we then add the m molecules of potassium chloride we should then be able to build up a system similar to what is obtained in the former case as regards saline equilibrium. The following results were obtained by this method of procedure.

The numbers signify millionth gram molecules per c.c., and the rates, R, denote the number of millionth gram molecules of $\mathrm{ClO_3}$ decomposed per minute in each cc.

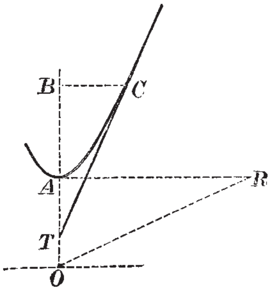
I.	$n = 18 \times 65{\cdot}11$ $m = 6 \times 51{\cdot}5$	A. $n\mathrm{HCl} + m\mathrm{KClO_3}$ gives $R = 0{\cdot}0104$ B. $(n - m)\mathrm{HCl} + m\mathrm{HClO_3} + m\mathrm{KCl}$ gives $R = 0\ 0105$
II.	$n = 15 \times 65{\cdot}11$ $m = 6 \times 51{\cdot}5$	A. $n\mathrm{HCl} + m\mathrm{KClO_3}$ gives $R = 0{\cdot}00554$ B. $(n - m)\mathrm{HCl} + m\mathrm{HClO_3} + m\mathrm{KCl}$ gives $R = 0{\cdot}00555$
III.	$n = 15 \times 65{\cdot}11$ $m = 2 \times 51{\cdot}5$	A. $n\mathrm{HCl} + m\mathrm{KClO_3}$ gives $R = 0{\cdot}00195$ B. $(n - m)\mathrm{HCl} + m\mathrm{HClO_3} + m\mathrm{KCl}$ gives $R = 0{\cdot}00191$

Dover College. W. H. PENDLEBURY.

On the Use of the Word Antiparallel.

AFTER reading Mr. James's note, I looked out the reference quoted by him from Stone's Dictionary in the "Acta Eruditorum." Stone's reference is quite correct, and, as the passage is an interesting one, it may be well to quote it in full. It occurs in an article by Leibnitz treating of the catenary.

"Tangentem ducere ad punctum lineæ datum C; in AR horizontali per verticem A sumatur R ut fiat OR æqualis OB datæ et ipsi OR ducta *antiparallela* CT, occurrens axi AO in T, erit tangens quæsita.



"*Antiparallelas* compendii causa hic voco ipsas OR et TC si ad parallelas AR et BC faciant non quidem eosdem angulos sed tamen, complemento sibi existentes ad rectum, ARO et BCT."

The following quotation is given in Murray's "New English

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Dictionary," and is assigned to the year 1660:—"To take the opposite course and to provide our remedy *antiparallel* to their disease." Here it seems intended to convey the idea of "parallel and in the opposite sense."

In Barlow's "Mathematical Dictionary" (1814), the modern meaning is given, and the old error as to the ratios of the segments of the sides of the triangle is pointed out.

In Rees's "Cyclopædia" (1819) the modern meaning is given, but a remark is added that Leibnitz used the word in the sense explained above; as no reference is given, we cannot tell whether the writer meant that he habitually used it or only in the article on the catenary. E. M. LANGLEY.

Bedford.

A Surviving Tasmanian Aborigine.

IN your issue of November 14 (p. 43), you refer to the paper read by Mr. James Barnard before the Royal Society of Tasmania on a Mrs. Fanny Cochrane Smith, who lays claim to be the last surviving aboriginal Tasmanian. Since your note appeared, I have read a report of the paper published in the *Hobart Mercury* of September 10 last, and think my view on the claim may be of some interest to your readers.

Mr. Barnard states that he knew Mrs. Smith forty years ago when she was seventeen years of age, and that during the period which elapsed since then until she called upon him shortly before he wrote his paper, he had not known of her whereabouts. In favour of the claim I can only find that she has, with apparently one exception, always been referred to officially as a pure-bred aborigine, and that Parliament appears to have voted her grants on two occasions (in 1882 and in 1884) on account of her unique position.

The objections to the claim may be briefly summarized as follows:—

(1) From the meagre account given, it appears her hair and complexion are both that of half-castes, and we are not supplied with any other description of her features or stature or peculiarities so as to be able to judge on the question.

(2) Beyond the mere statement as to mutual recognition no evidence is given that the claimant is the same girl Mr. Barnard knew forty years ago at Oyster Cove, nor, indeed, is there anything to show that this woman is the child, or one of the children, referred to by Lieut. Friend in controverting Count Strzelecki's well-known views, which *quasi* fact forms the foundation for the claim.

(3) The woman herself is reported to have no recollection of witnessing, at the age of thirteen, a document sufficiently important to have impressed itself on her memory, and it is somewhat strange that this very document is said to describe her as a half-caste.

It would, no doubt, be interesting were it to be eventually proved that this woman Fanny is a pure-bred aborigine, but for the present Truganina must be considered the last survivor of her race. HY. LING ROTH.

Lightcliffe, November 23.

Brilliant Meteors.

THE brilliant meteor seen at Warwick School and in Cumberland I saw at Folkestone on November 4 a little before 8. It was travelling slowly from north-west to north, about 30° above, and parallel with, the horizon. After travelling some distance it appeared to partly explode, and then went a little farther and burst. At first it was a beautiful green colour, but after it had partly burst it was nearly white. I imagined its colour was through the haze there was in the sky. From what I saw I am certain it would have been a splendid sight had the atmosphere been clear. P. A. HARRIS.

Inchulva, Maidstone, November 27.

LAST night, in clouded moonlight, whilst walking here from Newton by the road over Little Dunnow, my attention was arrested by the glare of what must have been a very bright meteor, seen through clouds which formed a general covering. The quarter in which the light appeared was east by north, at an elevation of about 25°, and it lasted a second and a half. There appeared to be three centres of illumination, but these may have been only thinner portions of the clouds. The time, as nearly as I could get it by comparing my watch by telegraph at the village post office this morning, was 22h. 48m. 45s.

Slaidburn, Clitheroe, December 2. R. H. TIDDEMAN.

REPORT ON THE MAGNETICAL RESULTS OF THE VOYAGE OF H.M.S. "CHALLENGER."

IT will be remembered by readers of the "Narrative of the Voyage of H.M.S. *Challenger*," that Vol. II., published in 1882, contained a report of the magnetic observations made in that vessel in considerable detail. It has, however, been reserved to the present year for a full discussion of the *Challenger* observations and their bearing on our existing knowledge of terrestrial magnetism to be made, and the following is an abstract of the final Report about to be published in Vol. II., "Physics and Chemistry of the Voyage of H.M.S. *Challenger*."

The method of representing the values of the magnetic elements by curves of equal value has, since 1700, when Halley published his map of the declination, found general favour; for in succeeding years we find Mountain and Dodson, Churchman, Yeates, and Barlow, also published maps of the same magnetic element.

In 1819, Hansteen added maps of inclination to the declination for certain epochs, and in 1826 produced a chart of isodynamic lines, revised in 1832.

Following Hansteen, there appeared, in 1840, Gauss and Weber's atlas, the result of calculations from about eighty-four observations distributed over the world, presenting a remarkable approach to the truth, even when viewed in the light of our comparatively extended knowledge of the earth's magnetism in the present day. It may be observed that, if only a fresh magnetic survey of the regions south of 40° S. latitude were now made, a recalculation of the Gaussian constants might be undertaken promising important results.

Between 1868 and 1876 Sir E. Sabine's "Contributions to Magnetism" were read before the Royal Society, forming a series of papers on the magnetic survey of the globe for the epoch 1842·5. Although the maps accompanying these contributions serve as a point of departure for comparison with subsequent maps, an examination of them shows that in Africa and the North and South Pacific Oceans there were large blanks from want of observations

There remained, therefore, a large field for observation, and it will now be shown how largely the *Challenger* Expedition contributed to the filling up of these blanks, and added to our knowledge of the changes going on in the magnetic elements in places visited by previous observers.

The whole of the magnetical results have been embodied with others from every available source in four charts[1] of the magnetic elements, for the epoch 1880, which may prove acceptable to magneticians desirous of noting the changes in the magnetic elements since 1842·5.

The *Challenger* was not an ideal ship in which to conduct magnetic observations at sea, for she was seldom at rest from pitching and rolling, and although the errors in the observations caused by the horizontal component of the ship's magnetism were moderate, and could be eliminated by "swinging" the ship, those proceeding from the vertical component were large, and necessitated a frequent comparison with normal values on land. But by discussing fully a series of observations made in numerous places in both hemispheres where no trace of local magnetic disturbance could be found, the magnetic condition of the ship was readily determined for any period of the voyage. As a consequence of this, normal values of the magnetic elements could be obtained in the neighbourhood of places known or suspected of being affected by local magnetic disturbance, and the amount of such disturbance measured with considerable accuracy.

This method of detecting local magnetic disturbance,

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[1] Note published with the "Report of the Scientific Results of the Voyage of H.M.S. *Challenger*," Physics and Chemistry, Vol. II., Part VI.

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